REMARKS

Claims 3-5 are pending in the present application, claims 1-2 and 6-10 having been canceled. The Examiner rejected claims 3-5 under 35 U.S.C. §112, 1st paragraph, 35 U.S.C. §112, 2nd paragraph, and 35 U.S.C. §103(a).

Section 112, paragraph 1 Rejections:

Claims 3-5 were rejected under 35 U.S.C. §112, 1st paragraph, for failing the enablement requirement. The Examiner alleged that the drawings were confusing and unclear, and that reference characters in the specification were not found in the drawings. The Examiner also does not understand the relationship between FIGS. 1 and 5.

Applicant has amended FIGS. 1, 4, 5 and 7, and the corresponding text in the specification. Specifically, FIG. 1 was amended to include labels I_1 and I_2 to identify image planes, and the corresponding text on pages 3 and 4 was amended to incorporate these image labels, to refer to FIG. labels *f* and *f'*, and to correct the reference to labels L_1 and L_2 to read D_1 and D_2, so as to correspond to the drawing figure.

FIG. 4 was amended to remove the best entry point labels.

FIGS. 5 and 7 were replaced with flowcharts with reference numbers identifying the steps, and the corresponding text on pages 12-13 and 14 of the specification was amended to incorporate these reference numbers.

Applicant urges that the drawing figures and corresponding description now correspond to each other, and are not confusing.

FIGS. 1 and 5 illustrate different embodiments of the invention. FIG. 1 illustrates needle placement by visual servoing in 3 successive planes, using 2 views, while FIG. 5 illustrates a method for a method for finding the best entry point for percutaneous procedures. The method of FIG. 5 forms the subject matter of claim 1, and is distinct from the subject matter illustrated in FIG. 1, although it can be used in conjunction with the subject matter illustrated in FIG. 1. FIG. 7 illustrates the subject matter of claim 3.

Applicant urges that claim 3 is enabled by the description of FIG. 7. Reconsideration and withdrawal of these section 112 rejections are respectfully requested.

Section 112, paragraph 2 Rejections:

Claims 3-5 were rejected under 35 U.S.C. §112, 2nd paragraph as being indefinite for the reasons presented above.

Applicant urges that, with the amendments made in connection with the enablement rejection, claims 3-5 are not indefinite.

Claim 3, and corresponding FIG. 7, are quite clear and explicit in the recitation steps *for visual servoing of a needle in a plane in a fixed number of iterations.* Reconsideration and withdrawal of this section 112 rejection are respectfully requested.

Section 103 Rejections:

Claims 3-5 were rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,799,055 (Peshkin, *et al.*)

Applicant respectfully traverses these rejections.

Applicant urges that the Examiner has failed to make out a *prima facie* case of obviousness for these rejections. To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the combination of prior art references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure.

Peshkin is directed to a system and method for using 2 fluoroscope images to guide a surgical procedures. Specifically, Peshkin's written description discloses that the

2 images are an anterior/posterior (A/P) image and a sagittal image. Although Peshkin does acknowledge the importance of positioning the end point of the device (Col. 1, lines 25-30), Peshkin nowhere discloses a method *for determining the best entry point for a percutaneous procedure, given a primary target for biopsy and a secondary target through which a biopsy needle must pass on its way to said primary target*, as recited in claim 1. Peshkin discloses, *inter alia*, registering the A/P and sagittal images to the patient's body, displaying fiducials of one image on the other image, receiving user input to select an entry point on one image to define a virtual guidewire, and to receive user input to change a parameter characterizing the virtual guidewire. Peshkin also discloses selecting an entry point of a guidewire in the A/P image, moving the top and bottom points of the guidewire, correcting spatial distortions resulting from the fluoroscope optics, registering the A/P and sagittal images, and displaying points chosen on one image in the other image.

However, Peshkin fails to disclose or suggest a method *for use in conjunction with a C-arm imaging apparatus, for visual servoing of a needle in a plane in a fixed number of iterations, with: a given position of said C-arm being modeled on an image plane, a given target point for needle biopsy, a given entry point on a patient, and a given plane within which said needle can rotate around said given entry point,* that includes *placing said needle in an arbitrary orientation around said given entry point, said orientation being associated with an angle* $\theta 1$ *with respect to an arbitrary reference direction; obtaining a 2-dimensional (2-D) projection image of said needle in said image plane; measuring the position l1 of said 2-D projection image; rotating said needle around said entry point by an angle* $\Delta\theta$ *to a position* $(\theta 1+\Delta\theta)$ *in said given plane; measuring the position 12 of said 2-D projection image; rotating said needle around said entry point by an angle* $\Delta\theta$ *to a position* $\theta 3=(\theta 1+2*\Delta\theta)$*; measuring the position 13 of said 2-D projection image; locating 2-D points f and t in said 2-D projection image that are the respective 2-D projections of said target point and said entry point, said points f and t defining an image line It=(ft); calculating the cross-ratio c=(11, 12, 13, It); determining a 3-D angle* θt *such that* $c=(\theta 1, \theta 2, \theta 3, \theta t)$*; and rotating said needle around said entry point by* θt *from position* $\theta 3$ *in said given plane, whereby said needle* *is positioned in three dimensional space at said entry point along a direction such that said needle is visually aligned to 2-D projection image of said target in said image plane,* as recited in Applicant's claim 3. The Examiner only generally refers to Peshkin as disclosing a method for determining the insertion point and angle of approach of a needle into the body, but does not otherwise provide any specific references to those features of Peshkin present in the method recited in Applicant's claim 3.

The Examiner concedes that Peshkin does not explicitly disclose selecting and determining steps defined in the claim, but contends it would be obvious to do so. However, as noted above, Peshkin fails to disclose any of the limitations of Applicant's claim 3. Thus, Applicant urges that claim 3 is not obvious over Peshkin. Reconsideration and withdrawal of this section 103 rejection are respectfully requested.

Claims 4-5 depend from claim 3, and are patentable for at least the same reasons as claim 3. Reconsideration and withdrawal of these rejections are respectfully requested.

CONCLUSION

Applicant urges that claims 3-5 are in condition for allowance for at least the reasons stated. Early and favorable action on this case is respectfully requested.

Respectfully submitted,

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